70 GHz Photodetector Chip



Overview

High-speed photodetector modules are of interest for the development of next.generation optical communication linksin datacom and telecom. Since these R&D links are always a step ahead interms of symbol rates, photodetector modules with a RF bandwidth beyond state-of-the-art are needed at the receiver side. Furthermore, the high-speed performance of the photodetector modules makes them applicable to microwave photonics.
The photodetector chips inside the modules are based on mature InP technology and are fabricated at the wafer process line of offering Telcordia and space-qualifiedprocesses. The chips are packaged atFraunhofer HHI facilities.

Features

- Up to 100 GHz 3 dB-bandwidth
- Detection of 128 GBaud amplitudemodulated signals
- Operation in O-band and C+L-band
- Integrated bias network
- Low bias operation

Specifications

Test conditions: 25 °C, unless otherwise specified

Parameters	Symbol	Test condition	Min.	Typ.	Max.	Unit
Operating Temperature	T0		0		75	℃
Storage Temperature	Ts		-40		85	℃
Operating Wavelength	λ			1550		nm
Bias Voltage	Vb			3		V
Active Area Diameter	Φ			14		μm
Saturation Optical Power	Ps	λ = 1550 nm, Vb= 5 V		40		dBm

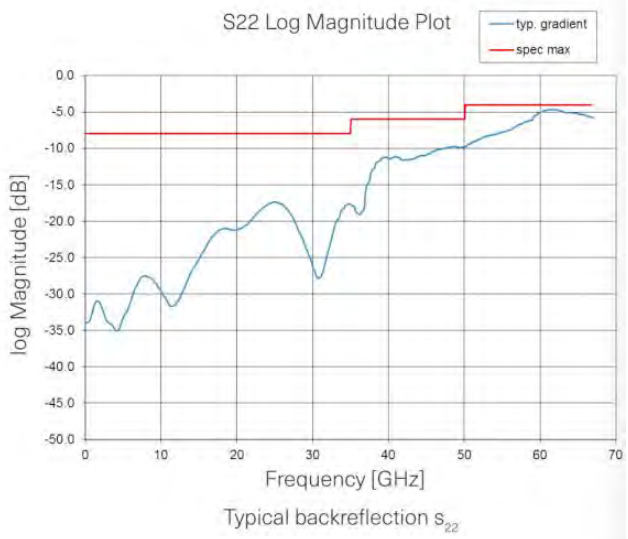
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Responsivity	R	λ = 1550 nm, Vb= 5 V		0.65		A/W
Dark Current	Id	Vb= 5 V		10		nA
3dB Bandwidth	BW	Ps,o = 5 mW, Vb= 5 V		70		GHz

Bandwidth and Responsivity value test



Typical frequency response s_{21}



Typical backreflection s_{22}

Application

- Data communication
- Tele communication
- Systems measurement & -test
- Photonics microwave